



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,866	10/23/2003	Paul A. Ward	CSLL-639CN (56247-)	6735

7590 07/21/2004

McDermott, Will & Emery
28 State Street
Boston, MA 02109-1775

EXAMINER

CORRIELUS, JEAN B

ART UNIT	PAPER NUMBER
----------	--------------

2631

DATE MAILED: 07/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/691,866	Applicant(s) WARD ET AL.	
	Examiner Jean B Corrielus	Art Unit 2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. It is noted that this application appears to claim subject matter disclosed in prior Application No. 09/837,827, filed 4/18/01. A reference to the prior application must be inserted as the first sentence of the specification of this application or in an application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e) or 120. See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. Also, the current status of all nonprovisional parent applications referenced should be included.

If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference to the prior application must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any

benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A priority claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed claim for priority under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Claim Objections

2. The dependency of claim 40 should be changed from "29" to "39". Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by

Birgenheier et al US Patent No. 5,187,719.

As per claim 1, Birgenheier et al discloses a method and apparatus comprising digitizer 19 for digitizing a sinusoid signal to form an inphase signal; introducing a phase shift (see fig. 3) into said digital signal to form a quadrature signal processing said I and Q signal using element 3 to generate amplitude 24 and phase 26 of the sinusoid signal.

As per claim 2, Birgenheier et al discloses filtering using filter 123 prior to generating the quadrature signal.

As per claim 3, the digital signal is provided to element 31, see fig. 4 that inherently introduces a delay to the digital signal because of the time required by the FIR filter to process the digital signal.

As per claim 4, the delay 33 is introduced to the I signal as well.

As per claims 5 and 6, the I and Q signals are processed according to $\tan^{-1}(Q/I)$ see fig.1.

As per claims 7, 8, the I and Q signals are processed according to $\sqrt{Q^2 + I^2}$ see fig. 3.

As per claim 9, the step of filtering using filter 123 inherently comprises attenuating out of band noise in said sinusoid signal.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 10-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birgenheier et al US patent No. 5,187,719.

As per claims 10-12, 22-24, 27, 30, 31 and 35-38 and as applied to claim 1 above, Birgenheier et al discloses every feature of the claimed invention but does not explicitly teach that the sinusoid signal is an output of a vibratory sensor. However, using a vibratory sensor such as an accelerometer to generate a sinusoid signal is a well-known technique. Given that, it would have been obvious to one skill in the art at the time of the invention to modify Birgenheier in such a way to generate a sinusoid signal using a vibratory sensor such as an accelerometer in order to satisfy specific system design requirement. As per claim 13, filter 123 is configured to receive the digitized signal from the A/D converter 19 and inherently remove out of band noise in said sinusoid signal before passing said digitized signal to said phase shift device see fig. 3.

As per claims 14 and 33-34, a phase shift of 90 degrees is introduced to the digitized signal see fig. 3.

As per claims 15, 25, 28, 32 and 39 the digital signal is provided to element 31, see fig. 4 that inherently introduces a delay to the digital signal because of the time required by the FIR filter to process the digital signal.

As per claims 16, 26, 29 and 40 the delay 33 is introduced to the I signal as well.

As per claim 17, said phase shift 31 comprises a Hilbert transformer see col. 6, lines 55-56.

As per claim 19, the I and Q signals are processed according to $\tan^{-1}(Q/I)$ see fig. 1.

As per claim 18, the I and Q signals are processed according to $\sqrt{Q^2 + I^2}$ see fig. 3.

As per claims 20, 21, using a Cordic algorithm or processor to generate the phase and the amplitude signals would have been obvious to one skill in the art in order to take advantage of its enhanced processing speed capability.

Conclusion

7. This is a continuation of applicant's earlier Application No. 09/837,827. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

8. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314

(for informal or draft communications, please label "PROPOSED" or
"DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA., Sixth Floor (Receptionist).

9. Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Jean B. Corrielus whose telephone number is (703) 305-4023.
The examiner can normally be reached on Monday-Thursday from 7:00 A.M. to 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,
Patel Jay, can be reached on 703-308-7728.

Any inquiry of a general nature or relating to the status of this application or proceeding
should be directed to the Group receptionist whose telephone number is (703) 305-3800.


Jean B. Corrielus

Primary Examiner

TC-2600 7/17/04